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EXAMINER
LE, MIRANDA

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2167	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/691,888	MCKEE ET AL.
	Examiner	Art Unit	
	MIRANDA LE	2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>23 April 2008</u>.

2a)☒ This action is **FINAL**.　　　2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-28</u> is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-28</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☐ All　b)☐ Some * c)☐ None of:

　　　1.☐ Certified copies of the priority documents have been received.

　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
　　Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
　　Paper No(s)/Mail Date. _____

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

This communication is responsive to Amendment, filed 04/23/08.

Claims 1-28 are pending in this application. This action is made Final.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims

under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims

was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point

out the inventor and invention dates of each claim that was not commonly owned at the time

a later invention was made in order for the examiner to consider the applicability of 35

U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruckner

(US Patent No. 6,208,992), in view of Kish et al. (US Patent No. 5,890,176).

As per claim 1, Bruckner teaches a computer system for presenting *(i.e. various logical views, col. 3, lines 61-67)* related items in a universal data storage device to a user *(i.e. The invention provides an universal, physical structure of a data model which (in a partial system, see below) allows any type and number of objects to be entered, stored, processed and evaluated, these objects to be linked with any type and number of attributes and thus to be identified or described, any type of object to be linked to any other type of object, and these object links in turn to have any type and number of attributes assigned to them, in order to be able to identify and describe the object links, col. 3, lines 31-39)*, the system comprising:

a universal data storage device *(i.e. The invention provides an universal, physical structure of a data model which (in a partial system, see below) allows any type and number of objects to be entered, stored, processed and evaluated, col. 3, lines 31-39)* containing a plurality of items *(i.e. objects, col. 3, lines 31-39)* stored in accordance with a data universal schema *(i.e. physical structure of a data model, col. 3, lines 31-39; conceptual schemata, col. 3, lines 61-67)* and containing relational information *(i.e. these objects to be linked with any type and number of attributes and thus to be identified or described, any type of object to be linked to any other type of object, and these object links in turn to have any type and number of attributes assigned to them, in order to be able to identify and describe the object links, col. 3, lines 31-39)* corresponding to at least a portion *(i.e. any type and number of attributes and thus to be identified or described, col. 3, lines 31-39)* of said plurality of items, wherein the relational information allows relationships between two or more the plurality of items to be determined *(i.e. these objects to be linked with any type and number of attributes and thus to be identified or described, any type of object to be linked to any other type of object, and these object links in*

turn to have any type and number of attributes assigned to them, in order to be able to identify *and describe the object links, col. 3, lines 31-39)*, wherein said universal data storage device utilizes said relational information to delete one or more items *(i.e. Each table has to have its* *specific input, access, modification and deletion algorithms, col. 2, lines 13-22; allowing them to* *be edited using identical transaction algorithms at system level for the entry, processing and* *evaluation, modification, output and deletion of information, col. 4, lines 1-16)* from the universal data storage device in response to a change in at least a portion *(i.e. any type and* *number of attributes and thus to be identified or described, col. 3, lines 31-39)* of said relationships, wherein said universal data storage device includes a reference-counting mechanism configured to count the number of relationships *(i.e. number of relationships between* *any type and number of objects, col. 4, lines 17-29)* between an item and other of said plurality of items in the universal data storage device *(i.e. Other fields in a link table can, in particular,* *also be used to evaluate the allocation in more detail, e.g. with regard to its relevance in terms* *of time (beginning and end of the allocation between book title and borrower=start and end of* *the lending period), but also with regard to the assessment by the operator as to whether the* *relationship exists (relationship exists de facto/is fictitious) or to the assessment of the* *verification status of an allocation (e.g. a witness statement in a police information system), col.* *7, lines 17-25)*; and

a shell for presenting *(i.e. various logical views, col. 3, lines 61-67)* said plurality of items to a user, wherein the shell is configured to present a selected item to a user *(i.e. By using an* *universal, physical model, the invention avoids the disadvantage of prior art, which insists on* *gearing the data structure specifically to the concrete tasks in each case, and which entails*

complex, task-oriented implementation of the input, processing/evaluation, transaction and

output algorithms, col. 3, lines 45-56) and is further configured to utilize said relational

information *(i.e. The invention assumes that all the information contents can be traced back to*

the following three basic elements: objects, attributes and relationships between objects, col. 4,

lines 30-35) to present one or more items in said data storage device which are related to said

selected item *(i.e. The invention allows various logical views, or logical views which can*

subsequently change (corresponding to the external or conceptual schemata) to be implemented

via subsequent modification of editing and processing algorithms at application program level,

without having to adapt the basic transaction and access algorithms to the physical data

structure, col. 3, lines 61-67).

   Bruckner teaches number of relationship between any type and number of objects at col.

4, lines 17-29, therefore, the number of relationship of Bruckner is implied the counting

mechanism, but Bruckner does not clearly disclose the counting mechanism.

   Bruckner does not explicitly teach a mechanism being further configured to delete said

item from the universal data storage device when said reference-counting determines that all

relationships to said item are removed.

   Kish teaches a mechanism being further configured to delete said item from the universal

data storage device when said reference-counting *(i.e. reference count, col. 7, lines 14-42)*

determines that all relationships to said item are removed *(i.e. pointer 305 does not point directly*

to the object, but instead points to a substitute object called a demand loader object which is

associated with the object and which will be discussed further below. Object pointers are

schematically illustrated in FIG. 4. An object pointer is an object that holds a real pointer. For

example, object pointer 400 holds pointer 408 as an attribute. Through operator overloading,

object pointer 400 is caused to behave like the real pointer 408. However, object pointer 400

also has additional attributes and methods. For example, each demand loader object, for

example, object 406, that comprises part of a document has a reference count 414 associated

with it. <u>The reference count 414 holds a count equal to the number of other object pointers that</u>

<u>currently point to the demand loader object. As illustrated in FIG. 4, three pointers 408, 410 and</u>

*<u>412 in object pointer objects 400, 404 and 402, respectively, point to object 406. Thus, **the**</u>*

*<u>**reference count 414 holds the number "3" When this number is decremented to zero,**</u>*

*<u>**indicating that the object is no longer referenced by any other objects, the object is**</u>*

*<u>**automatically deleted**</u>. Each object pointer has methods which maintain the reference count in its*

associated object. Object pointers 400, 402 and 404 have UpdateReferenceCount0 methods 416,

418 and 420 which update the reference count 414 associated with object 406. If one of object

pointers 400-404 is deleted, it decrements the reference count associated with object 406 before

it destroys itself, col. 7, lines 14-42).

It would have been obvious to one of ordinary skill of the art having the teaching of

Bruckner and Kish at the time the invention was made to modify the system of Bruckner to

include the limitations as taught by Kish. One of ordinary skill in the art would be motivated to

make this combination in order to automatically delete the object when the reference count is

decremented to zero, indicating that the object is no longer referenced by any other objects in

view of Kish (col. 7, lines 14-42), as doing so would give the added benefit of providing a

method and apparatus for minimizing storage space necessary to store multiple revision copies of

a document as taught by Kish (Field of the invention).

As to claims 9, 25, Bruckner teaches a computer-implemented method for presenting *(i.e.*

various logical views, col. 3, lines 61-67) related items in a universal data storage device *(i.e. an*

universal, physical structure of a data model which (in a partial system, see below) allows any

type and number of objects to be entered, stored, processed and evaluated, these objects to be

linked with any type and number of attributes and thus to be identified or described, any type of

object to be linked to any other type of object, and these object links in turn to have any type and

number of attributes assigned to them, in order to be able to identify and describe the object

links, col. 3, lines 31-39) to a user, the method comprising:

accessing *(i.e. entered, stored, processed and evaluated, these objects, col. 3, lines 31-39)*

data in said data storage device, wherein said universal data storage device stores a plurality of

items in accordance with a universal data scheme , and wherein at least a portion *(i.e. any type*

and number of attributes and thus to be identified or described, col. 3, lines 31-39) of said

plurality of items contain relational information which allows relationships between said

plurality of items to be determined *(i.e. The invention provides an universal, physical structure*

of a data model which (in a partial system, see below) allows any type and number of objects to

be entered, stored, processed and evaluated, these objects to be linked with any type and number

of attributes and thus to be identified or described, any type of object to be linked to any other

type of object, and these object links in turn to have any type and number of attributes assigned

to them, in order to be able to identify and describe the object links, col. 3, lines 31-39);

utilizing said relational information to determine *(i.e. these objects to be linked with any*

type and number of attributes and thus to be identified or described, any type of object to be

linked to any other type of object, and these object links in turn to have any type and number of

attributes assigned to them, in order to be able to identify and describe the object links, col. 3,

lines 31-39) a relationship between a selected item and one or more of the items containing said

relational information in the data storage device *(i.e. The invention allows various logical views,*

or logical views which can subsequently change (corresponding to the external or conceptual

schemata) to be implemented via subsequent modification of editing and processing algorithms

at application program level, without having to adapt the basic transaction and access

algorithms to the physical data structure, col. 3, lines 61-67);

       displaying said selected item and one or more related items to the user *(i.e. The invention*

allows various logical views, or logical views which can subsequently change (corresponding to

the external or conceptual schemata) to be implemented via subsequent modification of editing

and processing algorithms at application program level, without having to adapt the basic

transaction and access algorithms to the physical data structure, col. 3, lines 61-67);

       receiving a user input *(i.e. By using an universal, physical model, the invention avoids the*

disadvantage of prior art, which insists on gearing the data structure specifically to the concrete

tasks in each case, and which entails complex, task-oriented implementation of the input,

processing/evaluation, transaction and output algorithms, col. 3, lines 45-56) causing a change

in said relationship *(i.e. The invention allows various logical views, or logical views which can*

subsequently change (corresponding to the external or conceptual schemata) to be implemented

via subsequent modification of editing and processing algorithms at application program level,

without having to adapt the basic transaction and access algorithms to the physical data

structure, col. 3, lines 61-67);

counting the number of relationship (*i.e. number of relationships between any type and number of objects, col. 4, lines 17-29*) between said selected item and at least a portion of said other of said plurality of items in the universal data storage device (*i.e. these objects to be linked with any type and number of attributes and thus to be identified or described, any type of object to be linked to any other type of object, and these object links in turn to have any type and number of attributes assigned to them, in order to be able to identify and describe the object links, col. 3, lines 31-39*); and

Bruckner teaches number of relationship between any type and number of objects at col. 4, lines 17-29, therefore, the number of relationship of Bruckner is implied the counting mechanism, but Bruckner does not clearly disclose the counting mechanism.

Bruckner does not specifically teach deleting said selected item from the universal data storage device when said reference-counting indicates that all relationships to said item are removed.

Kish teaches deleting said selected item from the universal data storage device when said reference-counting (*i.e. reference count, col. 7, lines 14-42*) indicates that all relationships to said item are removed (*i.e. However, in accordance with the principles of the invention, pointer 305 does not point directly to the object, but instead points to a substitute object called a demand loader object which is associated with the object and which will be discussed further below. Object pointers are schematically illustrated in FIG. 4. An object pointer is an object that holds a real pointer. For example, object pointer 400 holds pointer 408 as an attribute. Through operator overloading, object pointer 400 is caused to behave like the real pointer 408. However, object pointer 400 also has additional attributes and methods. For example, each demand loader*

object, for example, object 406, that comprises part of a document has a reference count 414

associated with it. <u>The reference count 414 holds a count equal to the number of other object</u>

<u>pointers that currently point to the demand loader object. As illustrated in FIG. 4, three pointers</u>

<u>408, 410 and 412 in object pointer objects 400, 404 and 402, respectively, point to object 406.</u>

<u>Thus, the reference count 414 holds the number "3" When this number is decremented to</u>

<u>zero, indicating that the object is no longer referenced by any other objects, the object is</u>

<u>automatically deleted</u>, Each object pointer has methods which maintain the reference count in its

associated object. Object pointers 400, 402 and 404 have UpdateReferenceCount0 methods 416,

418 and 420 which update the reference count 414 associated with object 406. If one of object

pointers 400-404 is deleted, it decrements the reference count associated with object 406 before

it destroys itself, col. 7, lines 14-42).

It would have been obvious to one of ordinary skill of the art having the teaching of

Bruckner and Kish at the time the invention was made to modify the system of Bruckner to

include the limitations as taught by Kish. One of ordinary skill in the art would be motivated to

make this combination in order to automatically delete the object when the reference count is

decremented to zero, indicating that the object is no longer referenced by any other objects in

view of Kish (col. 7, lines 14-42), as doing so would give the added benefit of providing a

method and apparatus for minimizing storage space necessary to store multiple revision copies of

a document as taught by Kish (Field of the invention).

As per claim 13, Bruckner teaches one or more computer-readable media having

computer-executable instructions for performing a method for presenting related items in a

universal data storage device *(i.e. The invention provides an universal, physical structure of a data model which (in a partial system, see below) allows any type and number of objects to be entered, stored, processed and evaluated, col. 3, lines 31-39)* to a user, the method comprising:

accessing data in said universal data storage device *(i.e. The invention provides an universal, physical structure of a data model which (in a partial system, see below) allows any type and number of objects to be entered, stored, processed and evaluated, col. 3, lines 31-39),* wherein said universal data storage device store a plurality of items *(i.e. objects, col. 3, lines 31-39)* in accordance with a universal data schema *(i.e. physical structure of a data model, col. 3, lines 31-39; conceptual schemata, col. 3, lines 61-67),* and wherein at least a portion *(i.e. any type and number of attributes and thus to be identified or described, col. 3, lines 31-39)* of said plurality of items contain relational information which allows relationships between two or more of said plurality of items to be determined *(i.e. any type and number of attributes and thus to be identified or described, col. 3, lines 31-39)*;

utilizing said relational information to determine *(i.e. these objects to be linked with any type and number of attributes and thus to be identified or described, any type of object to be linked to any other type of object, and these object links in turn to have any type and number of attributes assigned to them, in order to be able to identify and describe the object links, col. 3, lines 31-39)* a relationship between a selected item and one or more of the items containing said relational information in the in the data storage device *(i.e. The invention allows various logical views, or logical views which can subsequently change (corresponding to the external or conceptual schemata) to be implemented via subsequent modification of editing and processing*

algorithms at application program level, without having to adapt the basic transaction and

access algorithms to the physical data structure, col. 3, lines 61-67);

      presenting said selected item and one or more related items to the user *(i.e. The invention*

allows various logical views, or logical views which can subsequently change (corresponding to

the external or conceptual schemata) to be implemented via subsequent modification of editing

and processing algorithms at application program level, without having to adapt the basic

transaction and access algorithms to the physical data structure, col. 3, lines 61-67);

      receiving a user input *(i.e. By using an universal, physical model, the invention avoids the*

disadvantage of prior art, which insists on gearing the data structure specifically to the concrete

tasks in each case, and which entails complex, task-oriented implementation of the input,

processing/evaluation, transaction and output algorithms, col. 3, lines 45-56) altering at least

one of said one or more source items or altering at least a portion *(i.e. any type and number of*

attributes and thus to be identified or described, col. 3, lines 31-39) of said relationship;

      counting the number of relationships *(i.e. number of relationships between any type and*

number of objects, col. 4, lines 17-29) between said selected item and at least a portion *(i.e. any*

type and number of attributes and thus to be identified or described, col. 3, lines 31-39) of said

other of said plurality of items in the universal data storage device *(i.e. information on the time*

or period of time when the relationship existed, information assessing the existence of the

relationship (existence is matter of fact/verified/hypothetically assumed/etc.), col. 10, lines 41-

42); and

Bruckner teaches number of relationship between any type and number of objects at col. 4, lines 17-29, therefore, the number of relationship of Bruckner is implied the counting mechanism, but Bruckner does not clearly disclose the counting mechanism.

Bruckner does not specifically teach deleting said selected item from the universal data storage device when said counting indicates that all relationships to said item are removed.

Kish teaches deleting said selected item from the universal data storage device when said counting *(i.e. reference count, col. 7, lines 14-42)* indicates that all relationships to said item are removed *(i.e. However, in accordance with the principles of the invention, pointer 305 does not point directly to the object, but instead points to a substitute object called a demand loader object which is associated with the object and which will be discussed further below. Object pointers are schematically illustrated in FIG. 4. An object pointer is an object that holds a real pointer. For example, object pointer 400 holds pointer 408 as an attribute. Through operator overloading, object pointer 400 is caused to behave like the real pointer 408. However, object pointer 400 also has additional attributes and methods. For example, each demand loader object, for example, object 406, that comprises part of a document has a reference count 414 associated with it. The reference count 414 holds a count equal to the number of other object pointers that currently point to the demand loader object. As illustrated in FIG. 4, three pointers 408, 410 and 412 in object pointer objects 400, 404 and 402, respectively, point to object 406. Thus, the reference count 414 holds the number "3" When this number is decremented to zero, indicating that the object is no longer referenced by any other objects, the object is automatically deleted. Each object pointer has methods which maintain the reference count in its associated object. Object pointers 400, 402 and 404 have UpdateReferenceCount0 methods 416,*

418 and 420 which update the reference count 414 associated with object 406. If one of object

pointers 400-404 is deleted, it decrements the reference count associated with object 406 before

it destroys itself, col. 7, lines 14-42).

It would have been obvious to one of ordinary skill of the art having the teaching of

Bruckner and Kish at the time the invention was made to modify the system of Bruckner to

include the limitations as taught by Kish. One of ordinary skill in the art would be motivated to

make this combination in order to automatically delete the object when the reference count is

decremented to zero, indicating that the object is no longer referenced by any other objects in

view of Kish (col. 7, lines 14-42), as doing so would give the added benefit of providing a

method and apparatus for minimizing storage space necessary to store multiple revision copies of

a document as taught by Kish (Field of the invention).

As per claim 18, Bruckner teaches a shell for presenting *(i.e. The invention allows*

various logical views, or logical views which can subsequently change (corresponding to the

external or conceptual schemata) to be implemented via subsequent modification of editing and

processing algorithms at application program level, without having to adapt the basic

transaction and access algorithms to the physical data structure, col. 3, lines 61-67) related

items in a universal data storage device to a user, the shell comprising:

a data storage device *(i.e. The invention provides an universal, physical structure of a*

data model which (in a partial system, see below) allows any type and number of objects to be

entered, stored, processed and evaluated, col. 3, lines 31-39) interaction component which

retrieves data associated with one or more items from the universal data storage device, wherein

said one or more items are stored in accordance with a universal data schema *(i.e. physical structure of a data model, col. 3, lines 31-39; conceptual schemata, col. 3, lines 61-67)* and at least a portion *(i.e. any type and number of attributes and thus to be identified or described, col. 3, lines 31-39)* of said one or more items contains relational information that allows relationships between two or more items to be determined, wherein at least a portion *(i.e. any type and number of attributes and thus to be identified or described, col. 3, lines 31-39)* of said relationships has associated file-time management semantics;

a related item presentation component which utilizes said retrieved data to present related items to a user *(i.e. By using an universal, physical model, the invention avoids the disadvantage of prior art, which insists on gearing the data structure specifically to the concrete tasks in each case, and which entails complex, task-oriented implementation of the input, processing/evaluation, transaction and output algorithms, col. 3, lines 45-56)*, wherein the relationship presentation component is configured to present a selected item to a user and is further configured to utilize said relational information to present one or more items in said data storage device which are related to said selected item *(i.e. The invention allows various logical views, or logical views which can subsequently change (corresponding to the external or conceptual schemata) to be implemented via subsequent modification of editing and processing algorithms at application program level, without having to adapt the basic transaction and access algorithms to the physical data structure, col. 3, lines 61-67)*; and

an item life-time management control *(i.e. Other fields in a link table can, in particular, also be used to evaluate the allocation in more detail, e.g. with regard to its relevance in terms of time (beginning and end of the allocation between book title and borrower=start and end of*

the lending period), but also with regard to the assessment by the operator as to whether the

relationship exists (relationship exists de facto/is fictitious) or to the assessment of the

verification status of an allocation (e.g. a witness statement in a police information system), col.

7, lines 17-25) configured to count the number of relationships *(i.e. number of relationships*

between any type and number of objects, col. 4, lines 17-29) between an item and other of said

plurality of items in the universal data storage device *(i.e. information on the time or period of*

time when the relationship existed, information assessing the existence of the relationship

(existence is matter of fact/verified/hypothetically assumed/etc.), col. 10, lines 41-42).

     Bruckner teaches number of relationship between any type and number of objects at col.

4, lines 17-29, therefore, the number of relationship of Bruckner is implied the counting

mechanism, but Bruckner does not clearly disclose the counting mechanism.

     Bruckner does not specifically teach a management control being further configured to

delete said item from the universal data storage device when the counting indicates all

relationships to said item are removed.

     Kish teaches a management control being further configured to delete said item from the

universal data storage device when the counting *(i.e. reference count, col. 7, lines 14-42)*

indicates all relationships to said item are removed *(i.e. However, in accordance with the*

principles of the invention, pointer 305 does not point directly to the object, but instead points to

a substitute object called a demand loader object which is associated with the object and which

will be discussed further below. Object pointers are schematically illustrated in FIG. 4. An

object pointer is an object that holds a real pointer. For example, object pointer 400 holds

pointer 408 as an attribute. Through operator overloading, object pointer 400 is caused to

behave like the real pointer 408. However, object pointer 400 also has additional attributes and

methods. For example, each demand loader object, for example, object 406, that comprises part

of a document has a reference count 414 associated with it. <u>The reference count 414 holds a</u>

<u>*count equal to the number of other object pointers that currently point to the demand loader*</u>

<u>*object. As illustrated in FIG. 4, three pointers 408, 410 and 412 in object pointer objects 400,*</u>

<u>*404 and 402, respectively, point to object 406. Thus, **the reference count 414 holds the number***</u>

<u>*"3" When this number is decremented to zero, indicating that the object is no longer*</u>

<u>*referenced by any other objects, the object is automatically deleted*</u>. *Each object pointer has*

methods which maintain the reference count in its associated object. Object pointers 400, 402

and 404 have UpdateReferenceCount0 methods 416, 418 and 420 which update the reference

count 414 associated with object 406. If one of object pointers 400-404 is deleted, it decrements

the reference count associated with object 406 before it destroys itself, col. 7, lines 14-42).

It would have been obvious to one of ordinary skill of the art having the teaching of

Bruckner and Kish at the time the invention was made to modify the system of Bruckner to

include the limitations as taught by Kish. One of ordinary skill in the art would be motivated to

make this combination in order to automatically delete the object when the reference count is

decremented to zero, indicating that the object is no longer referenced by any other objects in

view of Kish (col. 7, lines 14-42), as doing so would give the added benefit of providing a

method and apparatus for minimizing storage space necessary to store multiple revision copies of

a document as taught by Kish (Field of the invention).

As to claims 2, 19, 26, Bruckner teaches the relational information corresponding to one

or more of said plurality of items includes a set of item characteristics *(i.e. The invention*

concerns an information system, and, in particular, a process for the entry, storage, processing,

evaluation, representation and output of information regarding the existence or assumed

existence of any objects, the descriptive and/or identifying attributes of objects, any type and

number of relationships between any type and number of objects, the descriptive and/or

identifying attributes of relationships between objects on storage and processing systems (e.g.

relational database systems, RDBMS) suitable for this purpose, col. 4, lines 17-29).

As to claims 3, 27, Bruckner teaches said shell is configured to present one or more of

said set of item characteristics to a user *(i.e. The invention allows various logical views, or*

logical views which can subsequently change (corresponding to the external or conceptual

schemata) to be implemented via subsequent modification of editing and processing algorithms

at application program level, without having to adapt the basic transaction and access

algorithms to the physical data structure, col. 3, lines 61-67).

As per claim 4, Bruckner teaches said shell is configured to accept a user input

representing a selection to view one or more items in the data storage device *(i.e. By using an*

universal, physical model, the invention avoids the disadvantage of prior art, which insists on

gearing the data structure specifically to the concrete tasks in each case, and which entails

complex, task-oriented implementation of the input, processing/evaluation, transaction and

output algorithms, col. 3, lines 45-56) having one of said item characteristics *(i.e. FIG. 9 shows*

the link between source documents and the management objects which help to manage source

documents, identify and describe them using any attributes and place them in any relation to one

another, col. 14, lines 25-28).

As per claim 5, Bruckner teaches said shell is configured to present one or more items in

the data storage device which share one or more of said item characteristics *(i.e. FIG. 9 shows*

the link between source documents and the management objects which help to manage source

documents, identify and describe them using any attributes and place them in any relation to one

another, col. 14, lines 25-28).

As per claim 6, Bruckner teaches the shell is configured to present at least a portion of

said relational information *(i.e. FIG. 9 shows the link between source documents and the*

management objects which help to manage source documents, identify and describe them using

any attributes and place them in any relation to one another, col. 14, lines 25-28).

As per claim 7, Bruckner teaches the shell is configured to accept a user input

representing a selection to view items *(i.e. The invention allows various logical views, or logical*

views which can subsequently change (corresponding to the external or conceptual schemata) to

be implemented via subsequent modification of editing and processing algorithms at application

program level, without having to adapt the basic transaction and access algorithms to the

physical data structure, col. 3, lines 61-67) in the data storage device which are related to said

selected item *(i.e. FIG. 9 shows the link between source documents and the management objects*

which help to manage source documents, identify and describe them using any attributes and

place them in any relation to one another, col. 14, lines 25-28).

     As per claim 8, Bruckner teaches said relational information corresponding to the

selected item includes a set of item characteristics associated with the selected item and wherein

said user input represents a selection *(i.e. The invention assumes that all the information contents*

can be traced back to the following three basic elements: objects, attributes and relationships

between objects, col. 4, lines 30-35) to view one or more items in the data storage device which

share one of said set of item characteristics with the selected item *(i.e. FIG. 9 shows the link*

between source documents and the management objects which help to manage source

documents, identify and describe them using any attributes and place them in any relation to one

another, col. 14, lines 25-28).

     As to claims 10, Bruckner teaches the displaying of said selected item and one or more

related items includes displaying at least a portion of said relational information to a user *(i.e.*

*The invention allows various **logical views**, or logical views which can subsequently change*

(corresponding to the external or conceptual schemata) to be implemented via subsequent

modification of editing and processing algorithms at application program level, without having

to adapt the basic transaction and access algorithms to the physical data structure, col. 3, lines

61-67).

As to claims 11, Bruckner teaches said method further comprises receiving a user input representing a selection to view one or more items in the data storage device which are related to said selected item *(i.e. The invention allows various logical views, or logical views which can subsequently change (corresponding to the external or conceptual schemata) to be implemented via subsequent modification of editing and processing algorithms at application program level, without having to adapt the basic transaction and access algorithms to the physical data structure, col. 3, lines 61-67).*

As per claim 12, Bruckner teaches the displaying of said selected item and one or more related items is responsive to said input *(i.e. The invention allows various logical views, or logical views which can subsequently change (corresponding to the external or conceptual schemata) to be implemented via subsequent modification of editing and processing algorithms at application program level, without having to adapt the basic transaction and access algorithms to the physical data structure, col. 3, lines 61-67).*

As per claim 14, Bruckner teaches the one or more computer-readable media of claim 13, wherein the relational information includes a set of item characteristics *(i.e. The invention concerns an information system, and, in particular, a process for the entry, storage, processing, evaluation, representation and output of information regarding the existence or assumed existence of any objects, the descriptive and/or identifying attributes of objects, any type and number of relationships between any type and number of objects, the descriptive and/or identifying attributes of relationships between objects*

on storage and processing systems (e.g. relational database systems, RDBMS) suitable for this

purpose, col. 4, lines 17-29).

As per claim 15, Bruckner teaches the one or more computer-readable media of claim

13, wherein accessing data in said universal data storage device is in response to a user input

representing a selection to view one or more items *(i.e. The invention allows various logical*

views, or logical views which can subsequently change (corresponding to the external or

conceptual schemata) to be implemented via subsequent modification of editing and processing

algorithms at application program level, without having to adapt the basic transaction and

access algorithms to the physical data structure, col. 3, lines 61-67) in the data storage device

which are related to said selected item *(i.e. FIG. 9 shows the link between source documents and*

the management objects which help to manage source documents, identify and describe them

using any attributes and place them in any relation to one another, col. 14, lines 25-28).

As per claim 16, Bruckner teaches the one or more computer-readable media of claim

15, wherein said relational information corresponding to the selected item includes a set of item

characteristics associated with the selected item and wherein said user input represents a

selection *(i.e. The invention assumes that all the information contents can be traced back to the*

following three basic elements: objects, attributes and relationships between objects, col. 4, lines

30-35) to view one or more items in the data storage device which share one or more item

characteristics with the selected item *(i.e. FIG. 9 shows the link between source documents and*

the management objects which help to manage source documents, identify and describe them

using any attributes and place them in any relation to one another, col. 14, lines 25-28).

As per claim 17, Bruckner teaches the one or more computer-readable media of claim 13, wherein the presenting of said selected item and one or more related items includes presenting at least a portion of said relational information to a user *(i.e. FIG. 9 shows the link between source documents and the management objects which help to manage source documents, identify and describe them using any attributes and place them in any relation to one another, col. 14, lines 25-28).*

As per claim 20, Bruckner teaches the shell of claim 19, wherein said related item presentation component is configured to present one or more of said set of item characteristics to a user *(i.e. The invention allows various logical views, or logical views which can subsequently change (corresponding to the external or conceptual schemata) to be implemented via subsequent modification of editing and processing algorithms at application program level, without having to adapt the basic transaction and access algorithms to the physical data structure, col. 3, lines 61-67).*

As per claim 21, Bruckner teaches the shell of claim 19, wherein said related item presentation component is configured to present *(i.e. FIG. 9 shows the link between source documents and the management objects which help to manage source documents, identify and describe them using any attributes and place them in any relation to one another, col. 14, lines 25-28)* one or more items in the data storage device which share one of said item characteristics

(i.e. The invention allows various logical views, or logical views which can subsequently change

(corresponding to the external or conceptual schemata) to be implemented via subsequent

modification of editing and processing algorithms at application program level, without having

to adapt the basic transaction and access algorithms to the physical data structure, col. 3, lines

61-67).

As per claim 22, Bruckner teaches the shell of claim 18, wherein the related item

presentation component is configured to present *(i.e. FIG. 9 shows the link between source*

documents and the management objects which help to manage source documents, identify and

describe them using any attributes and place them in any relation to one another, col. 14, lines

25-28).

 at least a portion of said relational information *(i.e. The invention allows various logical views,*

or logical views which can subsequently change (corresponding to the external or conceptual

schemata) to be implemented via subsequent modification of editing and processing algorithms

at application program level, without having to adapt the basic transaction and access

algorithms to the physical data structure, col. 3, lines 61-67).

As per claim 23, Bruckner teaches the shell of claim 18, wherein the shell is configured

to accept a user input representing *(i.e. FIG. 9 shows the link between source documents and the*

management objects which help to manage source documents, identify and describe them using

any attributes and place them in any relation to one another, col. 14, lines 25-28) a selection to

view items in the data storage device which are related to said selected item *(i.e. The invention*

allows various logical views, or logical views which can subsequently change (corresponding to

the external or conceptual schemata) to be implemented via subsequent modification of editing

and processing algorithms at application program level, without having to adapt the basic

transaction and access algorithms to the physical data structure, col. 3, lines 61-67).

   As per claim 24, Bruckner teaches the shell of claim 23, wherein said relational

information corresponding to the selected item includes a set of item characteristics associated

with the selected item and wherein said user input *(i.e. The invention allows various logical*

views, or logical views which can subsequently change (corresponding to the external or

conceptual schemata) to be implemented via subsequent modification of editing and processing

algorithms at application program level, without having to adapt the basic transaction and

access algorithms to the physical data structure, col. 3, lines 61-67) represents a selection to

view one or more items in the data storage device which share one of said set of item

characteristics with the selected item *(i.e. FIG. 9 shows the link between source documents and*

the management objects which help to manage source documents, identify and describe them

using any attributes and place them in any relation to one another, col. 14, lines 25-28).

   As per claim 28, Bruckner teaches the computer system of claim 26, wherein said means

for accessing data in said universal data storage device interacts *(i.e. The invention allows*

various logical views, or logical views which can subsequently change (corresponding to the

external or conceptual schemata) to be implemented via subsequent modification of editing and

processing algorithms at application program level, without having to adapt the basic

transaction and access algorithms to the physical data structure, col. 3, lines 61-67) with said

data storage device in response to a user input representing a selection to view one or more items

in the data storage device having one of said item characteristics *(i.e. FIG. 9 shows the link*

between source documents and the management objects which help to manage source

documents, identify and describe them using any attributes and place them in any relation to one

another, col. 14, lines 25-28).

Response to Arguments

Applicant's arguments with respect to claims 1-28 have been considered but are moot in

view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Miranda Le whose telephone number is (571) 272-4112. The examiner can normally be reached on Monday through Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Cottingham, can be reached on (571) 272-7079. The fax number to this Art Unit is (571)-273-8300.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (571) 272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Miranda Le/

Primary Examiner, Art Unit 2167